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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,349	02/25/2004	David P. Bour	10031004-1	4871

57299 7590 06/20/2006

AVAGO TECHNOLOGIES, LTD.
P.O. BOX 1920
DENVER, CO 80201-1920

EXAMINER	
STAHL, MICHAEL J	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,349	BOUR ET AL.	
	Examiner	Art Unit	
	Mike Stahl	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *12-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/24/05,2/25/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Election

Applicant's election with traverse of claims 1-11 in the reply filed on March 27, 2006 is acknowledged. The traversal is on the grounds that the inventions are similar in subject matter and that the examination of both inventions together would not be overly burdensome because they have overlapping subject matter. This is not found persuasive because the apparatus claims can be searched without having to consider the particular processing steps and conditions which are recited by the method claims. Independent method claims 12 and 19 are also substantially broader than apparatus claim 1 since they do not specify the elongate growth window, the trapezoidal cross-sectional shape of the core mesa, or the overlap of the cladding layer that claim 1 requires.

The requirement is still deemed proper and is therefore made FINAL.

Claim 12-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction in the reply filed on March 27, 2006.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent; or
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitamura (US 5659565, cited in IDS).

Claim 1: Kitamura discloses a device comprising: a growth surface, a growth mask **52** on the growth surface defining an elongate window; an optical waveguide core mesa **55** located in the growth window and having a trapezoidal cross-sectional shape; and a cladding layer **56** covering the core mesa and extending over part of the growth mask (fig. 6).

Claim 2: The fig. 2 embodiment includes all the features of claim 1, and further includes the growth surface having a [100] crystalline orientation, and the optical waveguide core mesa having sidewalls of a [111] crystalline orientation.

Claim 3: The mask **24** in fig. 2 has edges aligned parallel to the [011] crystalline direction of the growth surface.

Claim 5: The fig. 6 device is an optoelectronic device and the core mesa includes a quantum well structure **54**.

Claim 7: The quantum well structure **54** includes quantum well layers comprising gallium, indium, arsenic, and phosphorus (col. 5 lns. 43-47).

Claim 9: The optical waveguide core mesa includes materials having a refractive index greater than that of the cladding layer **56**.

Claim 10: The cladding layer **56** is a first cladding layer; the device includes a second cladding layer **51**; and the growth surface is a surface of the second cladding layer.

Claim 11: The growth mask and optical waveguide core mesa are similar in thickness.

Claims 1, 5, 7-9, and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by Sasaki (US 6589806).

Claim 1: Sasaki discloses a device comprising: a growth surface, a growth mask on the growth surface defining an elongate window (the growth mask includes the portions of InP layer **2** remaining on top of substrate **1** in figs. 5C-5F); an optical waveguide core mesa **3/4/5** located in the growth window and having a trapezoidal cross-sectional shape; and a cladding layer **9** covering the core mesa and extending over part of the growth mask (figs. 5A-5F).

Claim 5: The device is an optoelectronic device and the core mesa includes a quantum well structure **4**.

Claim 7: The quantum well structure **4** includes quantum well layers comprising gallium, indium, arsenic, and phosphorus (InGaAsP).

Claim 8: The waveguide core additionally includes a separate confinement heterostructure (SCH) in which the quantum well structure is located (col. 10 lns. 16-24).

Claim 9: The optical waveguide core mesa includes materials having a refractive index greater than that of the cladding layer **9**.

Claim 11: The growth mask and optical waveguide core mesa are similar in thickness.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura (applied above to base claim 1).

Kitamura does not specifically disclose a waveguide core mesa which has a homogeneous structure. A skilled person would have understood that the disclosed method of growing the waveguide core mesa may also be used to create homogeneous or non-active waveguide cores. It would have been obvious to a skilled person to use the Kitamura method to make a device including a homogeneous core mesa since such devices are widely used in the art and since Kitamura teaches certain benefits as compared to other fabrication methods.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura (applied above to base claims 1 and 5) in view of Higashi et al. (US 5952673).

Kitamura does not specifically disclose that the quantum well layers include aluminum, instead employing a InGaAsP/InP system. AlGaInAs is a well known alternative to InGaAsP. Higashi teaches that a properly designed device using AlGaInAs quantum well layers can provide better temperature stability than one using InGaAsP quantum well layers (background section). Accordingly, it would have been obvious to a skilled person to use AlGaInAs instead

of InGaAsP in the Kitamura device in order to improve the temperature stability as suggested by Higashi.

Conclusion

The additional references listed on the attached PTO-892 form are considered relevant to the subject matter of this application.

Inquiries about this letter should be directed to Mike Stahl at 571-272-2360. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the technical support staff supervisor at 571-272-1626. Official correspondence which is eligible for submission by facsimile and which pertains to this application may be faxed to 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Questions about the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Stahl MJS
Patent Examiner
Art Unit 2874

June 11, 2006

Rodney Bovernick
Supervisory Patent Examiner
Technology Center 2800